Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) An apparatus for controlling the temperature of a core of a transformer, comprising:

a core for a superconducting transformer;

a conductive shield, wherein the shield substantially surrounds at least a portion of the core without establishment of electrical contact therewith;

a cast, wherein the cast is a thermally conductive material that occupies substantially all of the volume between at least a portion of the core and the shield; and

~~tubing~~ a thermally conductive, liquid-carrying tube, wherein the ~~tubing~~ tube is so positioned on the shield as to provide heat transfer capability between the shield and the liquid.

2. (Original) The apparatus according to claim 1, wherein the shield is made of copper.

3. (Currently amended) The apparatus according to claim 1, wherein the cast is made of a thermal epoxy, and wherein a thermal epoxy is a thermally conductive, electrically insulating material exhibiting adhesive properties, capable of transferring heat between other thermally conductive objects, capable of application in a fluid form, and capable of acting as a mechanical support for the core following a hardening process.

4. (Currently amended) The apparatus according to claim 1, wherein the ~~tubing~~ tube is made of copper.

5. (Currently amended) The apparatus according to claim 1, wherein the ~~tubing~~ tube is formed in a helix [[on]] surrounding at least a portion of the core.

6. (Currently amended) The apparatus according to claim 1, wherein the ~~tubing~~ tube runs in a wave pattern along a vertical axis of and surrounds at least a portion of the core.

7. (Original) The apparatus according to claim 1, wherein the cast is formed by using at least one mold to form the cast.

8. (Original) The apparatus according to claim 1, wherein the tubing accommodates a fluid for cooling the shield.

9. (Withdrawn) ~~A method for controlling the temperature of a core of a transformer, comprising:~~

~~placing a shield around the core of the transformer;~~

~~forming a cast between the core and the shield; and~~

~~placing tubing on the shield of the transformer.~~

10. (Withdrawn) ~~The method according to claim 8, further comprising:~~

~~directing a flow of fluid though the tubing for controlling the temperature of the core.~~

11. (Withdrawn) ~~The method according to claim 8, wherein the shield is made from at least one of a copper and a copper alloy.~~

12. (Withdrawn) ~~The method according to claim 8, wherein the tubing is made from at least one of copper and a copper alloy.~~

13. (Withdrawn) ~~The method according to claim 8, wherein the cast is made from an epoxy.~~

14. (Withdrawn) ~~The method according to claim 8, wherein the tubing is formed in a helix on the core.~~

15. (Withdrawn) ~~The method according to claim 8, wherein the tubing is placed along a vertical axis of the core in a wave pattern.~~

16. (Withdrawn) ~~The method according to claim 8, further comprising:~~

~~placing an adhesive on the shield to secure the tubing to the shield.~~

17. (Withdrawn) ~~An apparatus for controlling the temperature of a core transformer comprising:~~

~~a means for receiving heat from the core;~~

~~a means for directing the heat from the core to the receiving means; and~~

~~a means for cooling the receiving means, wherein the cooling means is placed on the receiving means.~~

18. (Withdrawn) ~~The apparatus according to claim 16, wherein the receiving means is a shield.~~

19. (Withdrawn) ~~The apparatus according to claim 16, wherein the directing means is a thermal epoxy cast.~~

20. (Withdrawn) ~~The apparatus according to claim 16, wherein the cooling means is tubing for accommodating a flow of fluid for cooling the receiving means.~~

21. (Withdrawn) ~~The apparatus according to claim 16, wherein the cooling means is vertically placed on the receiving means.~~

22. (New) The apparatus according to claim 1, wherein the conductive shield has the form of a hollow cylinder that substantially surrounds at least a portion of the core at a substantially uniform distance therefrom.

23. (New) The apparatus according to claim 1, wherein the conductive shield further comprises a nonconductive insert, wherein the insert, in conjunction with the shield, establishes a substantially complete fluid barrier around that portion of the core wherearound the shield is positioned.

24. (New) The apparatus according to claim 23, wherein the nonconductive insert further comprises a high molecular weight thermoplastic.

25. (New) The apparatus according to claim 23, wherein the nonconductive insert further comprises a cross-sectional shape resembling a capital letter "H", whereby a first edge and a second edge of the shield are joined to form a substantially continuous cylinder.

26. (New) The apparatus according to claim 23, wherein the nonconductive insert is so positioned as to prevent the shield from forming a closed electrical path around the core.

27. (New) The apparatus according to claim 5, wherein the helical configuration of the tube is embedded in the cast between the core and the shield.

28. (New) The apparatus according to claim 5, wherein the helical configuration of the tube is prevented from forming a closed electrical path surrounding the core by providing at least one dielectric break in the tube.

29. (New) The apparatus according to claim 6, wherein the wave configuration of the tube extends cyclically from a substantially lowest extent of the shield to a substantially highest extent of the shield.